

Reserve

PROGRESS REPORT ON DEVICES FOR TESTING HOME PRESSURE CANNER GAGES

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In the first half of 1944 a much larger number of gages has needed to be tested than ever before, and gage-testing equipment has been more difficult to obtain. Faced with these wartime problems, individuals, agencies, and concerns cooperating in the national home food preservation campaign have shown interest and ingenuity in developing gage-testing devices. Extension workers, resident departments of physics and engineering, home service and engineering departments of gas and electric companies, and pressure-cooker companies themselves, all have made contributions. Though the need for gage-testing devices has by no means been met, a brief progress report at this time should prove encouraging and stimulating. We hope it will bring us accounts of still other effective devices of which we have not yet heard.

In sending such accounts, please include an accurate description, a blueprint or a sketch drawn to scale, and information as to where and how description and drawing may be obtained.

Testing devices mentioned in a summary ^{1/} recently compiled from reports by extension workers on gage-testing programs completed in 1943 and planned for 1944 included: The maximum thermometer; U-shaped master gage assemblies fitted with connections for testing one or more gages, which can be screwed into the threaded opening left by unscrewing the gage or a separate safety valve, or into a hole specially drilled through the cover of the canner; similar master gage assemblies operated by air pressure at room temperature; and others operated by water pressure. In addition there were commercial gage testers, mercury manometers, and dead-weight testers, the last two available at the agricultural college or some engineering or physics laboratory.

It is evident that existing gage-testing devices may be classified in two ways:

1. As to whether they are operated by steam pressure developed within the cooker or by the pressure of air, water, or mercury, apart from the cooker.
2. As to whether they require the gage being tested to be unscrewed from the cover, or whether the gage is tested in place.

Checking the gage in place with steam pressure gives an opportunity to inspect and clean the other attachments and locate existing steam leaks. Experience has shown that the safety valves of many cookers badly need cleaning. On the other hand, time is required to build up steam pressure and to let it come down slowly. Also, where the maximum thermometer is used, additional time must be allowed for a 10-minute exhausting of the air in the cooker and the water it contains. Failure to exhaust thoroughly when using the maximum thermometer can be responsible for plus deviations in gage readings that would not otherwise be obtained. The maximum thermometer is the only device so far available for testing the weight-control type of gage.

^{1/} Pressure cooker gage-checking programs carried by State extension services in 1943, with suggestions for 1944. January 18, 1944. (Stencil 65-44)

AUG 7 1944

Testing with a master gage and air pressure or water pressure is quick, but devices of this kind often require the unscrewing of the gage from the cooker. Again, small master gages need periodic checking by such accurate instruments as mercury manometers or dead-weight testers.

Unscrewing the pressure gage for testing is often hard work and usually requires a special, thin, open-end wrench. Careless handling may result in stripping the threads from the stem of the gage. The use of litharge or "plumber's paste" to reset the petcock or safety valve is no longer recommended because of the difficulty of removing the gage or safety valve again.

New Jersey Device Tests Gage Without Removing It From Cover

Testing the gages while they are still attached to the cover, by means of a master gage assembly operated by compressed air in a storage chamber, is an ingenious method which made its appearance early this spring, the brain child of Mr. W. C. Krueger, extension engineer for New Jersey. Briefly, the apparatus consists of a compressed-air storage chamber, made of a 20-inch length of 2-inch pipe, closed at both ends and mounted on a 24-inch length of hardwood lumber, 1 inch thick and 6 inches wide.

The air chamber is fitted with a tire valve through which compressed air may be admitted from an air hose or tire pump. Mounted above the compressed-air storage chamber by stub nipples and connected with the chamber at one end is a length of 1/8-inch pipe connected with (1) a hand-operated needle valve which controls the flow of compressed air from the storage chamber, (2) the master gage attached to an L-shaped piece of pipe, and (3) a 3-inch nipple of 1/8-inch pipe with a football valve needle passing through a rubber cone and soldered into the end of the nipple. The stub nipple which supports the other end of the pipe is closed off with caulked solder.

To operate the tester the valve needle and tip of the rubber cone are inserted in the open stem of the pressure canner gage, so that the weight of the cover makes airtight closings. The compressed air is slowly let into the upper tube through the hand valve until the master gage registers the desired number of pounds. The reading of the canner gage is recorded and compared with that of the master gage. All county extension offices and several community canning centers in New Jersey are provided with these testing devices, which are simple and quickly operated. The apparatus is readily transported by car. Blueprints may be obtained from the Extension Service, New Jersey College of Agriculture, New Brunswick, New Jersey.

North Dakota Also Uses Tester With Compressed Air Storage Tank

Our original report on pressure cooker gage testing programs 1/ referred to North Dakota's pressure gage assembly for testing four or five gages simultaneously against a master gage. This assembly screwed into the threaded hole in the pressure cooker cover. This year, W. J. Promersberger, Extension Engineer, has adapted the apparatus to use a compressed air storage tank much like that in the New Jersey tester described above, except that the base is made of metal braces instead of wood. Several duplicates, packed in sturdy shipping boxes, are available for follow-up use in counties.

Weight Gage Used Instead Of Master Gage In Massachusetts Device

Mr. W. R. Cole, specialist in horticultural manufactures for the Massachusetts Extension Service, in cooperation with the resident department of engineering, has worked out a device which eliminates the periodic testing

of the master gage. This is accomplished by substituting a series of accurate weight-type controls for the master gage. After the pressure canner gage has been unscrewed and adjusted in the device, the testing is rapidly completed. Each county extension office in Massachusetts has one of these devices in use. Blueprints can be obtained from the Extension Service, Massachusetts State College, Amherst, Massachusetts.

Master Gage Carries Its Own Petcock

Another device for testing gages without removing them from the cover has been developed by the Wisconsin Aluminum Foundry Co. of Manitowoc, Wis., and application has been filed for materials. The company will notify State home demonstration leaders, food preservation specialists, and extension nutritionists as soon as the tester becomes available. This device is essentially a master gage with an elongated stem that screws into the threaded hole in the canner cover made available by removing the petcock. A horizontal petcock is attached to the stem of the master gage so that the air in the canner can be exhausted through it. Testing with this device takes somewhat longer than with the New Jersey apparatus just described, but makes it possible to check canner and gage at standard canning temperatures.

Burpee Gage Tester To Be Adapted To Gages Of Outsize Diameter

Distribution of the 1944 gage tester made by the Burpee Can Sealer Co. of Barrington, Illinois, began late in May. As master gage, this model carries a 2 $\frac{1}{2}$ -inch Ashcroft geared gage, fitted with a convex cover of plastic material instead of glass. The outfit includes a thin, open-end wrench for removing and replacing the gages to be tested, and is shipped well insulated, in a carton designed to serve as a carrying case. The company is developing an "adapter," which can be used for gages with outsize stems. This adapter will be included with the gage testers and will automatically be sent free to persons who have already purchased the 1944 model.

A Few Gages Available For Use In Testing Devices

The Lakeside Aluminum Co., 2619-33 Fourth Street SE, Minneapolis 14, Minn., which provides 2-inch recalibrator-type geared gages made by the J. P. Marsh Company of Chicago on its 1944 Home Deluxe cookers, has obtained a few hundred extra gages of this make which are available for sale as test gages, without priority. Though this is a small gage, its sturdy construction and the provision for resetting the pointer without unscrewing the back of the gage, make it a useful testing device. Write to L. L. McBurney, Vice-President.

Cooperation From Gas Companies And Other Public Utilities

On learning of the effective cooperation given by Washington State representatives of public utility corporations in the gage-testing program in 1943 $\frac{1}{2}$, we looked about for ways of obtaining similar help from representatives in other States. In this connection we asked Miss Jessie McQueen, home service counselor for the American Gas Association, 420 Lexington Avenue, New York 17, N. Y., a former extension nutritionist, to discuss with appropriate authorities the contributions that might be made by member companies of the association to the gage-testing program. As a result, home service directors and members of engineering departments of a number of companies started working on the problem, with special reference to serving urban and suburban owners of pressure cookers.

AUG 11 1944

In the May 1944 issue of the American Gas Association Monthly, under the title, "Testing Gages of Pressure Canners Is New Wartime Service of Gas Companies," Miss McQueen describes and illustrates several types of gage-testing devices now in use by gas companies cooperating actively in the gage-testing program. Other types have been reported since the article went to press.

Reprints of this article are being mailed to State leaders of home demonstration agents, nutrition and food-preservation specialists, and home management specialists. The sketches illustrate (1) the familiar U-shaped assembly of master gage and test gage screwed into the canner cover and operated by steam pressure; (2) modification of this device operated by air pressure, essentially the apparatus used successfully in Washington State; (3 and 4) two slightly different devices operated by water pressure from the city mains. The use of compressed air from the air-conditioning system in one company building is described, along with painstaking use of the maximum thermometer by other companies.

The California Extension Service reports splendid cooperation from public utility corporations throughout the State. This has involved special training conferences to prepare selected workers for their part in the program.

Comparable Records Of Gage Testing Desirable

Most workers competent to examine and adjust gages keep some sort of record for their own information. For example, Mr. A. C. Vacha, Bacteriologist of the Minnesota State Department of Agriculture, who checks pressure cooker gages for residents of Minnesota with his dead-weight tester and adjusts them when feasible, has records of 1300 gages checked in 1943, and is planning to summarize his records for 1943 and 1944, at the close of this year.

Comparable records, summarized by States and compiled for the nation, would show much about performance of different makes of gages, abuses to which owners subject them, and points to be emphasized in teaching the care of gages and other attachments.

From discussions with extension engineers and other qualified persons during a recent field trip, it would seem that the following information might well be recorded: Make of cooker; year of purchase; type of gage (geared, non-geared); make of gage, if known; pounds deviation when master gage reads 5, 10, and 15 pounds respectively; condition of gage when examined; corrections made, if any; special remarks. Time in recording might be saved by working out code numbers for conditions most frequently encountered, and also for corrections most frequently made. It should not be difficult at gage-testing clinics to appoint someone to fill in the record sheet under the direction of the person who examines the gages.

Several States are also keeping records of the condition of petcocks and safety valves examined.

We would appreciate receiving copies of forms used in your State, (a) to keep track of gages tested, and (b) to advise owners of adjustments made or of action to be taken.

It is apparent that some States are trying to discover and train competent persons to adjust and repair gages within local areas. As yet, we have little new information on this phase of the gage-testing campaign.